Prevalence of Psychiatric Disorders Across Latino Subgroups in the United States

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Objectives. We examined the prevalence of depressive, anxiety, and substance use disorders among Latinos residing in the United States.

Methods. We used data from the National Latino and Asian American Study, which included a nationally representative sample of Latinos. We calculated weighted prevalence rates of lifetime and past-year psychiatric disorders across different sociodemographic, ethnic, and immigration groups.

Results. Lifetime psychiatric disorder prevalence estimates were 28.1% for men and 30.2% for women. Puerto Ricans had the highest overall prevalence rate among the Latino ethnic groups assessed. Increased rates of psychiatric disorders were observed among US-born, English-language-proficient, and third-generation Latinos.

Conclusions. Our results provide important information about potential correlates of psychiatric problems among Latinos that can inform clinical practice and guide program development. Stressors associated with cultural transmutation may exert particular pressure on Latino men. Continued attention to environmental influences, especially among third-generation Latinos, is an important area for substance abuse program development. (*Am J Public Health.* 2007;97: 68–75. doi:10.2105/AJPH.2006.087205)

The influx of immigrants from Latin America in the past 3 decades is transforming the demographics of the United States, and it is estimated that 24% of the country's population will be Latino by 2050.[1] Yet, a significant gap exists between the need for and availability of mental health services for Latinos, particularly immigrants and those with limited English-language proficiency.[2,3] If this gap is to be addressed, empirical research must focus on determining the particular mental health needs of Latino populations.

Regional[4,5] as well as national[6,7] studies have begun to uncover differences in anxiety, depressive, and substance abuse disorders among Latinos that can be accounted for by nativity status. However, the majority of previous studies (see Grant et al.[8] for an exception) examining prevalence rates of these disorders have involved regional estimates of a single Latino group in 1 area of the country,[4,9,10] have represented aggregated Latino groups under 1 umbrella category,[11,12] or have included samples insufficient in size to allow for intergroup comparisons.[13]

To our knowledge, only 2 recent studies have reported past-year prevalence rates of psychiatric disorders among Latinos. The first, the National Comorbidity Study Replication (NCS-R),[14,15] included only English-speaking Latinos and estimated psychiatric disorder rates using the World Health Organization Composite International Diagnostic Interview (WMH-CIDI).[16] The second, the National Epidemiological Survey on Alcohol and Related Conditions,[8,17] included both English- and Spanish-speaking Latinos (15% of the Latino sample were interviewed in Spanish) and estimated psychiatric disorder rates using the National Institute on Alcohol Abuse and Alcoholism Alcohol Use Disorder and Associated Disabilities Interview Schedule from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*[18] (*DSM-IV*).

Population estimates of psychiatric disorders may provide incomplete profiles of overall prevalence differences across Latino subgroups as a result of nonrepresentative sampling (e.g., omission of Spanish speakers[11,14] or inclusion of only regional samples[9]), a lack of comparisons between foreign-born and US-born Latinos,[10] or a failure to examine important covariates (e.g., migration history, language, years of residence in the United States[11]). Such factors can limit identification of differential risk and protective factors for psychiatric disorders.[13]

The National Latino and Asian American Study (NLAAS) provides detailed data on psychiatric conditions and information on demographic, immigration, contextual, and sociostructural characteristics of Latino populations from different countries. It is the first nationally representative study of English- and Spanish-speaking Latinos to compare lifetime and past-year prevalence rates of psychiatric disorders across Latino subgroups using the WMH-CIDI. Another strength of the study is its inclusion of a substantial number of Spanish-speaking respondents (50%).

We analyzed NLAAS data to assess characteristics differentiating Latinos with increased prevalences of past-year and lifetime psychiatric disorders. We evaluated prevalence rates of depressive, anxiety, and substance use disorders among both male and female Latinos across subethnicity, nativity, generational status, English-language proficiency, length of residence in the United States, and age at migration.

METHODS

Sample and Data Collection

Between May 2002 and December 2003, the NLAAS surveyed a nationally representative sample of Latinos 18 years or older residing in households in the coterminous United States. The overall response rate was 75.5%. The sample design and survey methods of the NLAAS have been described in detail elsewhere.[19,20] Briefly, a 4-stage area probability design was implemented to sample (1) US metropolitan statistical areas and counties, (2) area segments, (3) housing units, and (4) respondents. The final sample consisted of 2554 English- and Spanish-speaking Latinos from the 4 major US subethnic group classifications: Mexican (n=868), Puerto Rican (n=495), Cuban (n=577), and "other" (n=614). The same ethnicity question used in the US census was used to stratify respondents

into these 4 subgroups according to their self-reported ethnicity.

The NLAAS weighted sample was similar to the 2000 census population in terms of gender, age, educational level, marital status, and geographic distribution but different in terms of nativity and household income. That is, the NLAAS sample included more US immigrants and more individuals with low incomes, perhaps as a result of the increased access to undocumented Latino populations.[21,22]

The language in which the NLAAS interview was conducted was determined as follows. Participants who stated that they could not speak English or could speak only "some English" were administered the interview in Spanish. Likewise, those who could not speak Spanish or could speak only "some Spanish" were administered the interview in English. Those speaking Spanish and English at "about the same" frequency were classified as bilingual and randomly assigned to either the Spanish or English version. Half of the participants were monolingual Spanish speakers or had limited English-language proficiency and requested the interview in Spanish. All study materials were translated into Spanish via a standard translation and back-translation protocol. The institutional review boards of the Cambridge Health Alliance, the University of Washington, and the University of Michigan approved all recruitment, consent, and interviewing procedures for the NLAAS. All study procedures were explained in the respondents' preferred language, and written informed consent was obtained in the respondents' preferred language.

Measures

The full survey instrument has been described in detail by Alegría et al.[19] As part of the study's underlying conceptual framework, it was hypothesized that contextual, social, and immigration factors played strong roles in Latinos' risk for psychiatric disorders. Sociodemographic measures assessed included gender, age, and education. Ethnicity and immigration factors included Latino ethnicity (Cuban, Puerto Rican, Mexican, or other Latino descent), nativity status (US- or foreign-born), years of residence in the United States (0–5, 6–10, 11–20, 21 or more, US-born), English-language proficiency (self-rating of ability to speak, read, and write English[23]), age at migration (12 years or younger, 13–17 years, 18–34 years, 35 years or older, US-born), and generational status (not born on US mainland [first generation], US-born with at least one parent foreign-born [second generation], respondent and both parents born on US mainland [third generation or later][25–27]).

The diagnostic interview of the World Mental Health Survey Initiative version of the WMH-CIDI,[16] a fully structured diagnostic instrument based on criteria of the *DSM-IV*, was used to evaluate prevalence rates of psychiatric disorders. We report past-year and lifetime prevalences of *DSM-IV* disorders for 4 composite diagnostic categories covering 11 disorders: depressive disorders (dysthymia, major depressive disorder), anxiety disorders (agoraphobia, social phobia, generalized anxiety disorder, posttraumatic stress disorder, panic disorder), substance use disorders (drug abuse, drug dependence, alcohol abuse, alcohol dependence), and "overall" psychiatric disorders (any depressive, anxiety, or substance use disorders). We did not assess diagnoses of schizophrenia or bipolar disorder, given that lay-administered diagnostic instruments substantially overestimate the prevalence of schizophrenia[28] and that it is difficult to calculate meaningful estimates for bipolar disorder in community samples given its low prevalence.[29]

Statistical Analyses

We used cross-tabulations to illustrate the distributions of demographic and immigration variables in the NLAAS data. We computed weighted prevalence rates of lifetime and past-year psychiatric disorders by calculating sample means across sociodemographic, subethnic, and immigration groups. We adjusted prevalence rates across generational groups for age and ethnicity so that we could examine these estimated rates as if each of the 3 generations had the same age and subethnicity distribution.

We conducted significance tests for differences among estimates according to sociodemographic and immigration characteristics (Tables 1–3) using the Rao–Scott statistic for the design-based F test, which adjusted for the complex survey design.[30] Bonferroni corrections were used whenever multiple pairwise comparisons were made. We fit regression models to assess the associations between prevalence rates of disorders and the linear and quadratic terms of the variables of interest (i.e., years of residence in the United States and age at migration to the United States, respectively).

We used weighted logistic regression analyses with control for age to model the association between prevalence rates of psychiatric disorders and each of the demographic, ethnicity, and immigration variables (Tables 2 and 3). In the regressions on generational status, we controlled for both age and subethnicity. Standard error estimates from logistic regression models were adjusted for the sampling design using a first-order Taylor series approximation, and we conducted significance tests using a design-adjusted Wald test.[31] In some of the immigration groups, there were no instances of substance use disorders, resulting in insufficient case numbers to provide an estimate. We used the Stata statistical software package (version 8.2) to conduct all analyses.[30]

RESULTS

Table 1 shows the characteristics of the NLAAS Latino sample and lifetime and past-year prevalence rates of psychiatric disorders according to gender, age, ethnic group, educational level, nativity status, English-language proficiency, years of residence in the United States, age at time of immigration, and generational status. Among male respondents, the lifetime psychiatric disorder prevalence estimate (CIDI/*DSM-IV*) was 28.1% (SE=2.1%), similar to the 30.2% (SE=1.6%; $P=.40$) for female respondents. Puerto Ricans had the highest overall lifetime and past-year prevalence rates among the 4 Latino subethnic groups, with pairwise differences in rates remaining significant after a Bonferroni correction ($P<.05$).

US-born Latinos were significantly more likely (36.8%; SE=2.1%) than Latino immigrants (23.8%, SE=1.1; $P<.01$) to fulfill lifetime criteria for 1 of the psychiatric disorders assessed. In the overall Latino sample, there was a trend for longer residence in the United States to be associated with increased prevalence rates of lifetime ($P=.006$) and

TABLE 1—Distribution of Sociodemographic and Immigration Factors in a Weighted Sample of Latinos, by Lifetime and Past-Year Psychiatric Disorders: NLAAS, May 2002–December 2003

	Sample, Unweighted No.	Sample, Weighted % (SE)	Lifetime Psychiatric Disorder, % (SE)	Past-Year Psychiatric Disorder, % (SE)
Gender				
Men	1127	51.50 (1.00)	28.14 (2.14)	13.47 (1.43)
Women	1427	48.50 (1.00)	30.23 (1.59)	17.40 (1.34)
Age, y				
18–34	1068	49.01 (1.78)	26.89 (1.48)	16.53 (1.32)
35–49	801	30.07 (1.10)	32.16 (2.11)	14.32 (1.12)
50–64	454	13.38 (0.86)	31.56 (2.58)	14.17 (1.76)
≥65	231	7.55 (0.91)	27.57 (4.26)	14.23 (3.97)
Ethnic group				
Puerto Rican	495	10.05 (1.06)	38.98 (3.15)	22.88 (2.20)
Cuban	577	4.63 (0.49)	28.38 (1.68)	15.91 (1.31)
Mexican	868	56.63 (3.75)	28.42 (1.58)	14.48 (1.16)
Other Latino	614	28.69 (2.97)	27.29 (2.32)	14.42 (2.07)
Education, y				
≤11	993	44.48 (1.80)	27.13 (2.16)	15.25 (1.39)
12	633	24.52 (0.90)	31.41 (2.14)	15.81 (1.71)
13–16	757	26.33 (1.33)	30.15 (2.28)	15.41 (1.91)
≥17	170	4.67 (0.64)	31.19 (4.71)	14.26 (3.62)
Nativity status				
Foreign-born	1630	58.54 (2.35)	23.76 (1.11)	13.12 (1.10)
US-born	924	41.46 (2.35)	36.77 (2.12)	18.57 (1.22)
English-language proficiency[a]				
Fair/poor	1254	49.19 (2.53)	23.13 (1.27)	11.70 (1.16)
Excellent/good	1291	50.81 (2.53)	35.09 (1.89)	18.97 (1.40)
Years in the United States[a]				
0–5	250	9.68 (1.26)	17.32 (3.12)	7.21 (1.96)
6–10	245	9.08 (0.93)	19.87 (2.71)	12.90 (2.72)
11–20	411	18.40 (1.24)	23.07 (2.06)	13.63 (1.76)
≥21	716	21.21 (0.99)	28.99 (2.40)	15.71 (1.78)
US-born	924	41.63 (2.34)	36.77 (2.12)	18.57 (1.22)
Age at time of immigration, y[a]				
≤12	365	12.22 (0.79)	28.68 (3.40)	17.24 (2.44)
13–17	216	10.95 (1.09)	21.37 (3.65)	11.67 (2.02)
18–34	735	28.73 (1.59)	21.61 (1.47)	11.29 (1.46)
≥35	306	6.47 (0.72)	28.14 (4.91)	16.69 (3.10)
US-born	924	41.63 (2.34)	36.77 (2.12)	18.57 (1.22)
Generational status[b]				
First	1630	58.60 (2.35)	23.76 (1.11)	13.12 (1.10)
Second	522	21.01 (1.07)	30.12 (2.76)	15.11 (1.95)
Third or later	397	20.39 (1.55)	43.39 (2.55)	21.80 (1.87)

Note. NLAAS = National Latino and Asian American Study.
[a]9 values were missing for English proficiency, and 8 values were missing for years in US and age at migration.
[b]With control for both age and subethnicity.

past-year (P=.035) psychiatric disorders. However, once we controlled for age (as part of a sensitivity analysis), there was no significant difference in lifetime (P=.76) or past-year (P=.12) prevalence according to years of residence in the United States.

Overall psychiatric disorder prevalence rates were higher among those who had migrated before the age of 13 years or after the age of 34 years than among those who had migrated at other ages. After we controlled for age, we found a marginally significant curvilinear trend between presence of a past-year psychiatric disorder and age at migration (P=.01 for linear term, P=.055 for quadratic term). Cross-generation comparisons showed that both lifetime and past-year psychiatric disorder rates were higher among third-generation respondents than among first- and second-generation respondents (all Ps≤.01 after Bonferroni correction).[24]

We examined associations between ethnic subgroups, nativity and immigration variables, and lifetime disorders in a series of weighted bivariate logistic regression analyses focusing on the 4 composite diagnostic categories, stratified by gender. Table 2 provides the results by subethnicity (we designated Puerto Ricans as the reference group, given previous literature indicating that they are at increased risk[10,32]), nativity status, English-language proficiency, years of residence in the United States, age at time of immigration, and generational status.

Psychiatric disorder odds were lower among Cubans and Mexicans than among Puerto Ricans across several categories (Table 2). Relative to their Puerto Rican counterparts, Mexican men (odds ratio [OR]=0.57; 95% confidence interval [CI]=0.34, 0.97) and women (OR=0.69; 95% CI=0.48, 0.99) were less likely to have a history of depressive disorders, and Cuban men were less likely to have a history of anxiety disorders (OR=0.52; 95% CI=0.29, 0.94) or substance use disorders (OR=0.31; 95% CI=0.14, 0.68). Similarly, both Cuban (OR=0.33; 95% CI=0.12, 0.91) and Mexican (OR=0.47; 95% CI=0.23, 0.97) women had significantly lower odds of a history of substance use disorders than did Puerto Rican women. Cuban men (OR=0.51; 95% CI=0.32, 0.89), Mexican men (OR=0.60; 95% CI=0.42, 0.87), and

TABLE 2—Bivariate Correlates of Lifetime Psychiatric Disorders in a Weighted Sample of Latinos: NLAAS, May 2002–December 2003

	Depressive Disorders		Anxiety Disorders		Substance Use Disorders		Overall Psychiatric Disorders	
	Men (n = 129), OR (95% CI)	Women (n = 278), OR (95% CI)	Men (n = 137), OR (95% CI)	Women (n = 293), OR (95% CI)	Men (n = 180), OR (95% CI)	Women (n = 64), OR (95% CI)	Men (n = 324), OR (95% CI)	Women (n = 445), OR (95% CI)
Ethnic group								
Puerto Rican (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cuban	1.00 (0.64, 1.55)	0.75 (0.47, 1.18)	0.52 (0.29, 0.94)*	0.73 (0.45, 1.21)	0.31 (0.14, 0.68)**	0.33 (0.12, 0.91)*	0.51 (0.30, 0.89)*	0.72 (0.47, 1.08)
Mexican	0.57 (0.34, 0.97)*	0.69 (0.48, 0.99)*	0.65 (0.41, 1.04)	0.67 (0.38, 1.17)	0.74 (0.44, 1.24)	0.47 (0.23, 0.97)*	0.60 (0.42, 0.87)**	0.66 (0.43, 1.03)
Other Latino	0.70 (0.37, 1.32)	0.70 (0.49, 1.01)	0.67 (0.38, 1.20)	0.56 (0.30, 1.05)	0.63 (0.34, 1.16)	0.56 (0.26, 1.21)	0.59 (0.34, 1.02)	0.59 (0.40, 0.87)**
Nativity status								
Foreign-born	0.75 (0.46, 1.25)	0.81 (0.58, 1.13)	0.69 (0.42, 1.12)	0.81 (0.63, 1.03)	0.31 (0.20, 0.46)**	0.07 (0.03, 0.17)**	0.45 (0.34, 0.58)**	0.62 (0.50, 0.79)**
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
English-language proficiency								
Excellent/good	1.62 (1.04, 2.54)*	1.29 (0.96, 1.72)	1.64 (0.94, 2.87)	1.36 (1.01, 1.83)*	2.47 (1.61, 3.79)**	19.19 (7.70, 47.83)**	2.12 (1.47, 3.05)**	1.68 (1.30, 2.18)**
Fair/poor (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Years in the United States								
0–5	0.43 (0.19, 0.98)*	0.62 (0.35, 1.10)	0.68 (0.23, 1.95)	0.52 (0.29, 0.92)*	0.13 (0.04, 0.36)**	0.01 (0.00, 0.09)**	0.32 (0.15, 0.71)**	0.40 (0.25, 0.65)**
6–10	0.47 (0.18, 1.19)	0.82 (0.48, 1.41)	0.46 (0.14, 1.49)	0.77 (0.45, 1.32)	0.16 (0.05, 0.52)**	…[a]	0.31 (0.19, 0.49)**	0.59 (0.37, 0.93)*
11–20	0.65 (0.31, 1.36)	0.77 (0.45, 1.32)	0.69 (0.40, 1.21)	0.74 (0.52, 1.07)	0.34 (0.18, 0.65)**	0.01 (0.00, 0.05)**	0.46 (0.29, 0.75)**	0.58 (0.40, 0.83)**
≥21	1.33 (0.61, 2.93)	0.97 (0.66, 1.41)	0.82 (0.41, 1.65)	1.01 (0.66, 1.53)	0.45 (0.27, 0.75)**	0.26 (0.10, 0.67)**	0.59 (0.39, 0.91)*	0.81 (0.56, 1.19)
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age at time of immigration, y								
≤12	1.40 (0.63, 3.11)	0.91 (0.44, 1.90)	1.26 (0.65, 2.45)	0.92 (0.60, 1.41)	0.37 (0.19, 0.74)**	0.24 (0.09, 0.64)**	0.64 (0.41, 0.99)*	0.78 (0.50, 1.20)
13–17	0.75 (0.33, 1.74)	0.81 (0.36, 1.79)	0.56 (0.27, 1.16)	0.71 (0.34, 1.52)	0.34 (0.14, 0.79)*	0.05 (0.01, 0.23)**	0.42 (0.22, 0.80)**	0.57 (0.26, 1.25)
18–34	0.52 (0.25, 1.09)	0.75 (0.52, 1.07)	0.45 (0.23, 0.92)*	0.79 (0.54, 1.15)	0.31 (0.18, 0.56)**	0.01 (0.00, 0.06)**	0.39 (0.26, 0.57)**	0.56 (0.42, 0.75)**
≥35	0.72 (0.27, 1.96)	0.95 (0.53, 1.72)	1.28 (0.46, 3.61)	0.72 (0.40, 1.28)	0.10 (0.03, 0.35)**	0.02 (0.00, 0.19)**	0.53 (0.22, 1.27)	0.67 (0.37, 1.24)
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Generational status[b]								
First	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Second	0.98 (0.54, 1.75)	0.85 (0.58, 1.23)	1.06 (0.55, 2.05)	1.03 (0.70, 1.51)	2.65 (1.70, 4.14)**	9.44 (3.62, 24.60)**	1.59 (1.06, 2.40)*	1.15 (0.82, 1.63)
Third or later	1.72 (0.96, 3.07)	1.63 (1.02, 2.62)*	1.80 (0.91, 3.59)	1.40 (1.00, 1.97)	3.72 (2.29, 6.03)**	17.78 (7.25, 43.58)**	2.96 (2.10, 4.18)**	2.09 (1.50, 2.93)**

Note. NLAAS = National Latino and Asian American Study; OR = odds ratio; CI = confidence interval. We controlled for age in all of the regressions.
[a]No positive case in this group.
[b]With control for both age and subethnicity in the regressions.
*P < .05; **P < .01 (2-sided).

women in the "other Latino" group (OR=0.59; 95% CI=0.40, 0.87) were significantly less likely to fulfill criteria for a history of psychiatric disorders than their Puerto Rican counterparts.

The results of the regression analyses shown in Table 2 support the initial descriptive findings presented in Table 1 regarding the relationship between immigration factors and psychiatric disorders. In general, both Latino immigrant men (OR=0.31; 95% CI=0.20, 0.46) and women (OR=0.07; 95% CI=0.03, 0.17) were significantly less likely than US-born Latinos (OR=0.45; 95% CI=0.34, 0.58, for men and OR=0.62; 95% CI=0.50, 0.79, for women) to have a history of substance use disorders (and, thus, a history of overall psychiatric disorders).

There was a uniform trend in which overall disorder rates were higher among Latinos proficient in English than among Latinos with poor or fair English-language proficiency, the exceptions being depressive disorders among women (OR=1.29; 95% CI=0.96, 1.72) and anxiety disorders among men (OR=1.64, 95% CI=0.94, 2.87). In terms of years of residence in the United States, odds of substance use disorders and overall psychiatric disorders were lower among all immigrant groups than among the US-born, the only exception being overall psychiatric disorders among immigrant women who had resided in the country for 21 years or more.

Independent of age at time of immigration, all immigrants had lower lifetime rates of substance use disorders than US-born Latinos. However, this pattern did not hold for depressive and anxiety disorders; most relationships

TABLE 3—Bivariate Correlates of Past-Year Psychiatric Disorders in a Weighted Sample of Latino Men and Women: NLAAS, May 2002–December 2003

	Depressive Disorders		Anxiety Disorders		Substance Use Disorders		Overall Psychiatric Disorders	
	Men (n = 67), OR (95% CI)	Women (n = 150), OR (95% CI)	Men (n = 89), OR (95% CI)	Women (n = 191), OR (95% CI)	Men (n = 50), OR (95% CI)	Women (n = 15), OR (95% CI)	Men (n = 160), OR (95% CI)	Women (n = 269), OR (95% CI)
Ethnic group								
Puerto Rican (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cuban	0.70 (0.35, 1.40)	0.78 (0.47, 1.32)	0.69 (0.32, 1.49)	0.70 (0.41, 1.19)	0.46 (0.19, 1.09)	2.23 (0.34, 14.80)	0.61 (0.39, 0.95)*	0.74 (0.47, 1.16)
Mexican	0.67 (0.33, 1.36)	0.78 (0.48, 1.26)	0.65 (0.35, 1.23)	0.48 (0.28, 0.84)*	0.63 (0.31, 1.25)	1.41 (0.24, 8.36)	0.54 (0.38, 0.76)**	0.56 (0.33, 0.96)*
Other Latino	0.70 (0.27, 1.84)	0.96 (0.60, 1.54)	0.49 (0.21, 1.13)	0.43 (0.22, 0.85)*	0.57 (0.20, 1.60)	3.15 (0.57, 17.32)	0.51 (0.27, 0.97)*	0.58 (0.34, 0.97)*
Nativity status								
Foreign-born	0.60 (0.34, 1.06)	0.90 (0.63, 1.31)	0.69 (0.36, 1.32)	0.88 (0.60, 1.29)	0.34 (0.16, 0.72)**	…[a]	0.60 (0.42, 0.85)**	0.74 (0.57, 0.97)*
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
English-language proficiency								
Excellent/good	2.28 (1.14, 4.58)*	1.08 (0.76, 1.54)	1.65 (0.81, 3.35)	1.20 (0.79, 1.82)	2.17 (0.89, 5.31)	…[a]	2.20 (1.26, 3.83)**	1.46 (1.06, 2.02)*
Fair/poor (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Years in the United States								
0–5	0.38 (0.12, 1.25)	0.39 (0.15, 0.99)*	0.58 (0.16, 2.14)	0.30 (0.10, 0.88)*	0.15 (0.02, 1.27)	…[a]	0.41 (0.14, 1.21)	0.23 (0.11, 0.50)**
6–10	0.28 (0.07, 1.04)	0.99 (0.50, 1.95)	0.41 (0.10, 1.72)	1.06 (0.59, 1.90)	0.21 (0.05, 0.93)*	…[a]	0.39 (0.17, 0.90)*	0.91 (0.56, 1.46)
11–20	0.57 (0.22, 1.45)	0.85 (0.40, 1.79)	0.64 (0.30, 1.37)	0.79 (0.44, 1.43)	0.62 (0.25, 1.55)	…[a]	0.64 (0.35, 1.20)	0.72 (0.43, 1.21)
≥21	1.06 (0.48, 2.34)	1.23 (0.82, 1.86)	0.99 (0.42, 2.36)	1.28 (0.82, 2.02)	0.24 (0.09, 0.67)**	…[a]	0.83 (0.52, 1.32)	1.05 (0.76, 1.45)
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age at time of immigration, y								
≤12	1.07 (0.40, 2.80)	0.98 (0.39, 2.47)	1.05 (0.43, 2.55)	0.90 (0.58, 1.39)	0.51 (0.16, 1.58)	…[a]	0.91 (0.56, 1.47)	0.91 (0.56, 1.47)
13–17	0.55 (0.23, 1.31)	1.03 (0.39, 2.72)	0.62 (0.27, 1.44)	0.77 (0.26, 2.26)	0.29 (0.06, 1.38)	…[a]	0.47 (0.22, 0.99)*	0.47 (0.22, 0.99)*
18–34	0.47 (0.20, 1.14)	0.72 (0.48, 1.06)	0.51 (0.21, 1.25)	0.87 (0.50, 1.51)	0.34 (0.09, 1.25)	…[a]	0.52 (0.34, 0.81)**	0.52 (0.34, 0.81)**
≥35	0.30 (0.11, 0.80)*	1.45 (0.73, 2.88)	1.17 (0.27, 5.11)	1.08 (0.57, 2.06)	0.04 (0.00, 0.30)**	…[a]	0.74 (0.21, 2.54)	0.74 (0.21, 2.54)
US-born (reference)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Generational status[b]								
First	1.00	1.00	1.00	1.00	1.00	…[c]	1.00	1.00
Second	1.18 (0.46, 3.04)	0.61 (0.37, 1.01)	0.97 (0.43, 2.22)	0.91 (0.56, 1.46)	2.86 (1.27, 6.44)*	…[c]	1.33 (0.82, 2.17)	0.93 (0.65, 1.33)
Third or later	2.16 (1.20, 3.89)*	1.64 (0.97, 2.77)	1.93 (0.85, 4.36)	1.26 (0.70, 2.29)	2.85 (1.21, 6.69)*	…[c]	1.97 (1.26, 3.08)**	1.75 (1.15, 2.65)*

Note. NLAAS = National Latino and Asian American Study; OR = odds ratio; CI = confidence interval. We controlled for age in all of the regressions.
[a] There was no positive case in this group.
[b] Withc control for both age and subethnicity in the regressions.
[c] There was no positive case in the reference group.
*P < .05; **P < .01 (2-sided).

between age at time of immigration and the likelihood of these disorders were insignificant. Generational status also exhibited significant relationships with psychiatric disorders in the expected direction. Risks of lifetime substance use disorders and overall psychiatric disorders were higher among second- and third-generation respondents than among first-generation respondents, the only exception being overall psychiatric disorders among second-generation women.

Table 3 displays odds ratios of the associations between sociodemographic, ethnicity, and immigration variables and prevalence rates of past-year psychiatric disorders. Consistent with the lifetime disorder results, Puerto Ricans were at higher risk across several disorder categories. Men in the Cuban, Mexican, and "other Latino" groups were less likely to have had any disorder in the past year than were Puerto Rican men. Mexican women and those in the "other Latino" group were less likely than Puerto Rican women to have had an anxiety disorder in the past year.

Nativity effects were significant for past-year psychiatric disorders among all Latinos and for past-year substance use disorders among Latino men. Men with good or excellent English-language proficiency were at increased risk (OR=2.28; 95% CI=1.14, 4.58) of past-year depressive disorders. Both men (OR=2.20; 95% CI=1.26, 3.83) and women (OR=1.46; 95% CI=1.06, 2.02) with good or excellent English-language proficiency were at increased risk of having experienced at least 1 of the assessed psychiatric disorders in the past year. When we conducted sensitivity analyses to determine whether this relationship remained after control for education,

the significant findings revealed in our original analysis did not change (data not shown); the only exception was that Latino men with good or excellent English-language proficiency were also at greater risk of past-year substance use disorders.

In contrast to the results for lifetime disorders, relationships between years of residence in the United States and past-year psychiatric disorders displayed no consistent pattern, probably owing to the smaller numbers of specific past-year disorders. Both men and women who had immigrated between 13 and 34 years of age were significantly less likely than those born in the United States to fulfill criteria for past-year psychiatric disorders. Finally, in comparison with first-generation men, third-generation men were significantly more likely to have had depressive disorders, substance use disorders, or psychiatric disorders, whereas second-generation men were more likely to have had substance use disorders. Psychiatric disorders were significantly more likely among third-generation women than among first-generation women (OR=1.75; 95% CI=1.15, 2.65).

DISCUSSION

The psychiatric disorder prevalence rates among Latinos residing in the United States that we report were considerably lower than those reported in the NCS-R for Latino English-speaking populations.[15] Several factors could explain these substantial differences. For example, the NCS-R limited its Latino population to those who were proficient in English, possibly amplifying prevalence rates among Latinos. In addition, the sample of Latinos was substantially smaller (n=527) in the NCS-R than in the NLAAS (n=2554). Future analyses of combined NCS-R and NLAAS data will help explain the differences in prevalence rates across these Latino samples.

There are several limitations of this study. Our prevalence estimates of lifetime and past-year psychiatric disorders may have been conservative if participation rates were lower among Latinos with such disorders and given that our exclusionary criteria restricted the participation of incarcerated or homeless populations. The small sample sizes for some of the Latino subgroups may have limited the detection of significant differences in rates across groups. Also, certain symptoms of psychiatric disorders among immigrant populations (e.g., *ataque de nervios*, or "attack of nerves") are not represented in the diagnostic batteries used with the general population, which may have constrained our ability to identify individuals with psychopathology.

Limitations

The results of this study provide important information about potential correlates of psychiatric problems that can inform clinical practice and guide program development efforts aimed toward Latinos. Consistent with other studies,[33–35] our findings indicate that first-generation immigrant status and low English-language proficiency may be associated with a reduced risk for substance use disorders and, consequently, a lower overall risk for psychiatric disorders in general. The finding that immigrant status exerts a protective effect on substance use disorders across Latino groups is consistent with "the Latino paradox": the typical finding that although low socioeconomic status is associated with suboptimal health outcomes, the health status of Latinos in low socioeconomic categories is better than that of non-Latino Whites in the same categories, and the health status of Latino immigrants is better than that of US-born Latinos.

Conclusions

Various hypotheses have been offered to explain the apparent paradoxical association between immigration status and substance use disorders, including selective migration mechanisms (i.e., those with substance use disorders have difficulty migrating[36]) and theories of relative deprivation.[37] Another such hypothesis is that substance abuse disorders are strongly vulnerable to environmental effects. Levels of exposure to substances may be higher and norms for substance-using behaviors more positive in US communities than in recent immigrants' countries of origin, increasing the likelihood of lifetime exposure.[33] The substance abuse field has a history of successfully applying environmental and policy interventions in alcohol use[38] and HIV prevention[39] in low-income communities. Continued attention to environmental influences and interventions,[38,39] particularly in the case of third-generation Latinos, is an important area for substance abuse program development.

The lack of a protective effect of nativity with respect to lifetime and past-year affective disorders suggests that other factors in addition to environmental context (e.g., genetic factors,[40] chronic demoralization,[41] exposure to stressful life events[42]) may play a central role in mood disorders, suggesting more heterogeneous risk profiles across Latino subgroups. If responses to stressful life events, for example, are more linked to gender role differences than to contextual differences,[42] then nativity-specific differences may be attenuated.

The results indicating elevated rates of past-year psychiatric disorders among Puerto Rican men and women confirm findings from previous studies.[7] Among Puerto Rican women, these elevated rates might be explained by the structures of Puerto Rican families in the United States[43] and Puerto Rico,[44] with an overrepresentation of households headed by single women. Given that gender role differentiation is a strong value in Puerto Rico,[45] Puerto Rican migrant women may find heading a household to be a particularly strong source of stress, especially in the United States, where they may have less support from extended family members.

The finding that Puerto Rican men were at increased risk of psychiatric disorders might be related to the higher rates of unemployment and underemployment among these men than among men in other US Latino groups.[46] An alternative explanation is that because all Puerto Rican men and women are US citizens, those with physical and mental health problems can travel more freely to the United States. Differences in prevalence rates of lifetime psychiatric disorders between men in the Puerto Rican and "other Latino" groups and men in the Mexican and Cuban groups might also represent true differences in disease prevalence resulting from stress and adversity.[47,48]

Because Puerto Ricans are US citizens, they may feel more entitled than other foreign-born Latinos to share the socioeconomic advantages enjoyed by the majority of the non-Latino White population; as a result,

they may feel more discriminated against than foreign-born Latino groups. In addition, they may experience a greater sense of failed expectations if they are not economically successful in the United States. Also, Puerto Rican men may leave their country to seek improved quality of life more often than other Latino groups who leave for political or economic reasons (e.g., Cubans).[49]

Another important finding is the risk of recent depressive disorders among men with good or excellent English-language proficiency and among men whose parents were born in the United States. The advantages and stressors of the process of cultural transmutation,[50] whereby one shifts back and forth between the customs and cultural practices of 2 cultures,[51] might augment opportunities for social mobility but also might result in the erosion of strong family and social ties. Attempts to assimilate to an economic and cultural ideal in the United States while retaining a minority status position may exert particular pressure on Latino men.[52] This is an area requiring increased awareness in general practice settings,[53] wherein doctors may need information about the risk factors for depressive disorders affecting Latino men at higher levels of acculturation.

Across all of the disorders assessed, English-language proficiency was most associated with risk. This finding must be interpreted with caution, given that proficiency in English was self-reported and that it not only may be a marker of assimilation into a host culture but may reflect structural characteristics (e.g., greater job demands) influencing health outcomes.[54] Recent studies propose English-language proficiency as an indicator of loss of the values often associated with Latino culture that positively influence psychiatric health, such as strong family and social support.[55]

Although English-language proficiency is linked to positive social outcomes (e.g., education, income) traditionally associated with decreased rates of psychiatric disorders,[11] recent analyses of minority populations have revealed decreased risks of disorders among individuals at lower educational levels.[15] Access to education and increased income may also increase exposure to experiences of discrimination and prejudice, which have been associated with psychiatric distress.[56] Further analyses of these language relationships, as well as other probable correlates of risk related to this population (e.g., social stressors and past history of disorder), are being conducted using NLAAS data.

The increased risk of psychiatric disorders found among those born in the United States does not necessarily translate into increased treatment rates. Rates of service use vary considerably across subgroups and across disorders.[57] Perceptions of need for mental health care do not necessarily overlap well with objective measures of psychiatric diagnosis[58] or with treatment. Clinicians and medical professionals need to consider the patterns of psychiatric disorder risk observed among Latinos in the present study and use this information to inform their clinical assessments. ■

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Contributors

M. Alegría originated this study and led the conceptualization, design, and all aspects of writing the article. N. Mulvaney-Day, M. Torres, and A. Polo assisted with drafting the article. Statistical expertise was provided by Z. Cao. All of the authors reviewed drafts, contributed to critical revisions of the article, and assisted in the analysis and interpretation of data.

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Human Participant Protection

The institutional review boards of the Cambridge Health Alliance, the University of Washington, and the University of Michigan approved all recruitment, consent, and interviewing procedures for the National Latino and Asian American Study. All study procedures were explained in respondents' preferred language, and written informed consent was obtained in respondents' preferred language.

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